

EMBIOPTERA CULTURES

CENTRAL AMERICA

JUNE - AUGUST, 1963

D. CAVAGNARO, COLLECTOR

C-651 — 660

C-~~650~~ C-651 DREPANEMBIA

CULTURE I - QUEZALTEPEQUE,

EL SALVADOR - VII-1-63

1300 ft.

This species is by far the most abundant and obvious species over the whole of the big valley in which Quezaltepeque lies. I found them on fence posts, tree trunks, adobe walls, and in small bromeliads on tree branches throughout the area. When I visited a nearby old lava flow, a rather distinctive area, I found the same species again on tree stumps and lava rocks. In all cases the web of the female is very white and obvious, not at all concealed. About the first of July only females with eggs were to be found, and this culture largely consists of collections made at that time from fence posts, roadbanks, lava rocks, and tree trunks. Subsequently

some egg parasites emerged (date with specimen)  
and predaceous hemipterans were harvested  
both in the field and in the culture.

Eggs - large, oval, smooth, and white,  
grouped loosely in the main part of the  
tunnel. Eggs ~~hatched~~ hatch in the field about  
the second week of ~~the~~ July and by  
the end of July nearly all the eggs of  
the area have hatched.

Mike Irwin collected a culture of  
this species 2 years ago, ~~and~~ but I keep  
this large culture going because  
currently (August 22) it is a splendid  
supply of Microphygids in all  
stages of development. Some mites are  
multiplying in the culture as well.

1 Sclerogid emerged -

Note also the strange fly which emerged  
from a separate tube of this species.

A special rate is included with the  
specimen.

In the field, by the second week of  
August the young embiids had begun to radiate  
out some from the central web but still  
maintained a common tunnel system with  
each other and with the parent ♀.

C-652

CULTURE 2 - QUEZALTEPEQUE, EL SALVADOR

VII-1-63

1300 ft.

Collected among lichens on a garden tree.

Thin bluish webs, partly concealed in the lichens. Very likely this is the weed species.

A couple of males were harvested. —

~~and~~ (see dates with specimen)



Small black Oligembia

C-653

CULTURE 3 - SAN SALVADOR, EL SALVADOR

VI-25-63

I found some very small bluish webs on small damp fence posts in a shady spot opposite Escuela Normal Superior, and gathered a number of tiny immature specimens. Subsequently they have matured, and I discovered apparently another species among the larger (probably weed) species. There is at least one female of a very tiny mahogany-colored species in this culture and she must have been fertile when collected because she laid several eggs on the tube wall about August 10. She built very little web of her own and lived adjacent to but outside of the larger heavy tunnel of the other species. The eggs hatched August 22, but I have not seen the female tending the young, though she carefully guarded the eggs.

C-654

CULTURE 4 - CERRO VERDE, EL SALVADOR

6800 feet. VII-5-63

Chelicerca n. sp.

Cerro Verde is a large rounded cone on the side of the larger Volcan Santa Ana.

The cool climate here permits <sup>the growth of</sup> a thick cloud forest of very large oaks covered with epiphytes. On a previous visit I searched vainly on tree trunks, among lichens and moss of every sort, and failed to locate any Embiinae. I finally discovered one mature male (VI-29-63) in a short tunnel beneath a log resting on damp leaf litter.

When I returned I searched a long while before finding this one female guarding a tight clump of logs in her tunnel beneath a rock, where she found protection in dry leaves. The extreme wetness of the forest floor would not be suitable for Embiinae, and so they seem to take refuge in drier



niches which are scarce.

By July 18 more eggs began to appear, cemented singly to the tube wall quite unlike the aggregation in her original tunnel. No imbricate emerged for so long that I became suspicious, and then one day, August 4, a large number of egg parasites emerged. Both males and females of these tiny wasps are black, but the females are wingless.

August 22 - still no signs of young imbricate; I fear this culture will not develop, though the ♀ is quite healthy.

## DREPANEMBIA

C-655

CULTURE 5 - VOLCAN SAN SALVADOR,

VII-8-63, EL SALVADOR

4500-5000 feet.

I originally thought this large species was the same as the common one around Amegaltepeque much lower, but I am not sure because the mature females of this mountain culture are much larger than those lower down. They occupy the same fence post and roadbank niches. I collected several females and a large quantity of eggs.

By July 16 to 20 many of the eggs had hatched.

August 10-20 - a huge number of egg parasites suddenly emerged and continued to appear in quantities in the culture as late as August 20. The females are red and wingless, the males winged, black, and tan.

These large embiids seem to blend into the smaller ones lower down, for this type of embiid is found all the way up the slopes throughout the coffee plantations. Those higher are distinctive (in the field) only in size and not in habits. Let's compare the egg parasites of each, also, from high and from low. I would guess they are <sup>of</sup> the same species.

penult XII-20-63

A. gen & sp. Anisembiinae  
Oligembius n. sp. Dilobocera n. sp.

C-656

CULTURE 6 - VOLCAN SAN SALVADOR,

EL SALVADOR VII-8-63 4500-5000 ft.

Many immature specimens and some tiny mature females were collected from the bark of a tree stump and from beneath thin bark on fence posts along roads and paths in the coffee plantation area in the "saddle" about 4500-5000 feet.

I failed to find embiids on the west summit of the volcano or in its immense crater, but I found them on the east and highest peak, right in the natural vegetation. I located one slope which was more open and sunny, right below the start of the thick summit patch of tall oaks. In this slope the vegetation consists of small trees and shrubs and a thick groundcover of grasses and all sorts of small plants. No trees shade the area.



The elevation here is about 6,300 ft., not far below the 1958 meter (6420) summit.

These tiny embryos were living beneath lichens on well-drained, fairly dry stems of small bushes. Almost no web was visible on the surface. I thought when collecting in the field that there were two species here and they looked quite like what mature ones I had found lower on the fence posts. Later males began to mature - beginning August 1 when a male of each of the species matured. The larger male is much more pale than the tiny black species.

This culture contains the total collection of small embryos from the volcano, from disturbed and natural areas.

The large volcano species (culture 5) I found only as far as the saddle area at about 4500-5000 ft., in more disturbed

areas around coffee plantations, in the same situations, too, where these tiny species were found. But I failed to find the large embryos higher or anywhere in the natural forest areas.

And in the cloud forest itself I could not find either; the moss on the trees is rather thick and wet for embryos, and I could locate none in the Cerro Verde leaf litter niche on this volcano, though I rather suspect that a counterpart of the larger Cerro Verde species (cult. 4) should ~~be~~ occur here.

Many males have matured.

2 more Aug 11 - and more up to Aug 22.

*Drepanembia* n. sp.

orange head Eggs XI-17-63

C-657

CULTURE 7 - USULUTAN, EL SALVADOR

50 feet VII-12-63

When I discovered these embiids my first impression was that they represented an eastern lowland counterpart of the common black and white species (cult. 1) around Amegaltepeque, some 75 miles away. This embiid looked quite distinct, however. The mature females were black and fairly shiny, with some white membranes between segments. And their heads were slightly more reddish than the rest of their bodies. Size - somewhat smaller than the Amegaltepeque species.

I found them most commonly on palm log fence posts right out in the blazing hot lowland sun. The posts were very dry. I gathered many mature females and a lot of first and second instar young, and a few eggs.

Since, the cultures <sup>had</sup> begun to look sick and



most of the females died. August 22 I changed the culture and salvaged about 8 healthy young embryos, so I think all is well for the present.

very high  
roughly  
5-6000 ft.

C-658

CULTURE 8 - TURRIALBA, COSTA RICA

VII-31-63

*Chelidonia  
ruficollis*

Turrialba is a little town located among the hills in a cool climate. Next to a big river, whose canyon walls are forested with epiphyte-covered oaks and other cool- and moisture-loving trees, there is a very large graduate school and research center, INSTITUTO INTERAMERICANA DE CIENCIAS AGRICOLA (Dr. J.K. Knake is one of the entomologists I believe)

This culture was gathered from the roadbanks on a road passing by the Institute, down the hill and across the river. The small bluish webs are easy to find on the well-drained areas of the road bank. Some females and a penultimate male or 2 were collected.

Male matured: (date with specimen.)



C-659

CULTURE 9 - PANAMA CITY, PANAMA

VII-28-63 25 ft.

These are probably weeds, collected  
from a palm tree along one of the city  
streets. Web: thin, very bluish.

*Saundersii*

roughly  
5,000 - 6,000 ft.

C-660

CULTURE 10 - NEAR PANAJACHEL,

GUATEMALA VIII-19-63

Anisembia n. gen + sp.

Dilobocerca n. sp.

Panajachel is situated on the shore of beautiful Lake Atitlan, in the mountains of Guatemala. The forest on the ridges above the lake consists of pines and oaks, and the whole appearance of the landscape in many places reminded me of Sierra foothill scenes. Atitlan itself is located ~~at~~ on the delta of a large ~~river~~ <sup>stream</sup> which cuts through the hills and empties into the lake. Alders and willows grow on the delta, and I found no embiids in this area.

Higher up, however, near the bridge which crosses the river, I found some webs on the roadbanks and collected some of the tiny embiids. Then I noticed that they occurred even more commonly as I went up into the leaf litter at the tops of the banks.

I found later that this species (I think it is the same) is primarily a leaf litter species. On a hike up along the very steep ridge above Panajachel, about

feet in elevation, in a ~~small~~ pure forest of 3 or 4 oak species, I discovered that the damp (but not wet, for this is very well drained) oak leaves were in places a continuous colony of embiid. I overlooked them at first because they are very tiny and their webs are nearly invisible. Often the whole silk system was inclosed in one leaf curl and was not evident outside.

I found no evidence of males at this time in the field; only mature females were collected in the leaf litter.

C-661

CULTURE II - PANAJACHEL, GUATEMALA

V II-19-63

Before I found the leaf litter embiid here I was searching the bark of trees vainly for embiids. At last, by stripping lichens from the bark of Casuarina trees in a small plantation overgrown with wild growth, I found traces of silk not at all visible on the surface. I eventually found the webs commonly under lichens on these trees, but I found almost no embiids. Perhaps there are 3 or 4 in this culture. I found tiny larvae in some of the webs; these looked like larvae of either a parasitic wasp or fly, and in one web I found 2 tiny fly cocoons. All of these things are included in this culture, so we shall see.

It is possible this is the leaf litter species also, for I found they continued down the lichens



into the Casuarina needles at the tree  
base.